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(72) Inventor: **YAMAGATA SHIGERU**
NAKAMURA RYOHEI
KENMOCHI KATSUHIKO

(54) PRODUCTION OF LASER OPTICAL BASE MATERIAL**(57) Abstract:**

PURPOSE: To obtain a laser optical base material capable of assuring durability and high quality for laser beams having high output and a short wavelength range by heat-treating the high-purity quartz glass lumps in the oxidative or reductive atmosphere to remove oxygen defect.

CONSTITUTION: In the case of production of a laser optical-system base material utilized for laser beams having a specified wavelength range of nearly 400nm and below, the following treatment is performed. In other

words, after forming the high-quality quartz glass lumps made to a laser optical-system base material, these quartz glass lumps are heat-treated in either of the oxidative atmosphere or the reductive atmosphere and thereby oxygen defect existing in the structure of these quartz glass lumps is removed. It is desirable that the temp. of the above-mentioned heat treatment is arbitrarily selected at 500W/1500°C and removal of oxygen defect is made difficult at the temp. lower than 500°C and on the other hand, the effect is not improved even at the temp. higher than 1500°C and disadvantage of deformation of the glass lumps is caused on the contrary.

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